

Status Update: Extended Storage and Transportation Waste Confidence

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Overview

- **Update on NRC activities for the back end of the fuel cycle**
 - **Regulatory framework for extended storage and transportation**
 - **Update of the Waste Confidence decision and rule**



Current Policy Environment

- **U.S. national policy for disposition of spent nuclear fuel is in transition**
 - Extended (dry) storage of spent fuel may be necessary
 - Alternative disposal options may emerge
- **NRC's mission remains the same – ensure the safe and secure use of radioactive materials while protecting people and the environment**
- **Consistent with Commission direction, NRC staff is preparing for potential changes in policy**



NRC Initiatives

- **Extended Storage and Transportation (EST)**
 - Identify and address areas that may affect safe storage of spent fuel over long periods, and related transportation
 - Potential changes to NRC storage and transportation regulations and guidance
- **Waste Confidence**
 - Commission directed staff to prepare Environmental Impact Statement (EIS) and revised rule within 24 months.
 - Commission order: no final licenses until Waste Confidence is complete



Extended Spent Fuel Storage and Transportation: Framework

- **Dry Storage**
 - 10 CFR Part 72
 - Term certificates and licenses
 - Aging management plans for renewal
 - Multiple renewals allowed
- **Transportation**
 - 10 CFR Part 71
 - Term certificates with renewal
 - Certification generally separate from storage





Extended Spent Fuel Storage and Transportation: Approach

- **Enhance technical knowledge for regulating extended storage of spent nuclear fuel**
 - Identify technical issues associated with long-term storage and subsequent transportation
 - Perform focused research on technical areas of regulatory significance
- **Identify needed revisions to regulatory framework**
- **As appropriate,**
 - revise regulations
 - develop or revise guidance
 - develop staff capabilities



Extended Spent Fuel Storage and Transportation: Current Work

- ***Finalize report on *Technical Information Needs Affecting Potential Regulation of Extended Storage and Transportation****
 - Respond to public comments
 - Small adjustments to priority areas
 - Clarifications and improved explanations
- **Technical investigations underway in highest-priority areas**
- **Further technical investigations in next level areas now starting**



Extended Spent Fuel Storage and Transportation: Technical Needs

- Focus on potential degradation phenomena for dry storage systems
- Consider impact on performance of safety functions
- Highest priority technical information needs
 - Stress corrosion cracking of stainless steel canisters and welds
 - Swelling of fuel over time, including fuel fragmentation
 - More realistic thermal models for longer time periods
 - Effects of residual moisture after drying
 - In-service monitoring methods
- Eight areas in next priority level include degradation processes for cladding, hardware, concrete



Extended Spent Fuel Storage and Transportation: Current Projects

- **Examples of current NRC technical investigations:**
 - Laboratory tests to better define susceptible conditions for stress corrosion cracking of canisters
 - Development of more-realistic thermal models using computational fluid dynamics methods
 - Analysis of potential effects of residual moisture
 - Surveys of in-service monitoring and non-destructive examination methods
 - Research plan for fuel swelling and cladding stress
 - Research plan for concrete degradation, inspection, and monitoring



Waste Confidence Status

- **NRC staff is on schedule**
 - Completed first phase of project in March 2013
 - Scoping Summary Report
- **Status updates**
 - NRC staff holds monthly teleconferences, updates website, maintains e-mail list



Waste Confidence Next Steps

- **Plan to complete the draft generic EIS and rule for comment by September 2013**
- **Plan to hold 8 meetings across the U.S. plus 2 webcast meetings from NRC HQ in the September-October timeframe**
- **75-day comment period**
- **Final EIS and Rule by September 2014.**



Conclusions

- NRC is continuing to perform its mission while preparing for potential policy changes
- NRC is engaged in several multi-year initiatives concerning storage and transportation of spent fuel
- Initial NRC staff efforts have defined tasks and developed plans and schedules
- Technical work is underway on high priority areas
- Staff will continue in productive interactions with public, industry, and other stakeholders